Force, Motion and Work Practice Problems

speed acceleration force work

FORMULAS:

1. What is the speed of a rocket that travels 9000 meters in 12.12 seconds?
2. A trip to Cape Canaveral, Florida takes 10 hours. The distance is 816 km. Calculate the average speed.
3. A ball rolls down a ramp for 15 seconds.  If the initial velocity of the ball was 0.8 m/sec and the final velocity was 7 m/sec, what was the acceleration of the ball?
4. A meteoroid changed velocity from 1.0 km/s to 1.8 km/s in 0.03 seconds. What is the acceleration of the meteoroid?
5. The space shuttle releases a space telescope into orbit around the earth. The telescope goes from being stationary to traveling at a speed of 1700 m/s in 25 seconds. What is the acceleration of the satellite?
6. How much force is needed to accelerate a truck with a mass of 2,000 kg, at a rate of 3 m/s/s?
7. How much force is needed to accelerate a 66 kg skier at 2 m/sec2?
8. What is the force on a 1000 kg elevator that is falling freely at 9.8 m/sec2?
9. A hydraulic lift exerts a force of 12,000N to lift a car 2 m. How much work is done on the car?
10. If a model airplane exerts a force of 0.25 N over a distance of 10 meters, how much work is done by the airplane?